

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113993 A1

(51) International Patent Classification⁷: **G02B 27/52**,
27/09, 27/46

(21) International Application Number:
PCT/DK2004/000452

(22) International Filing Date: 25 June 2004 (25.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PA 2003 00966 26 June 2003 (26.06.2003) DK

(71) Applicant (for all designated States except US): **RISØ
NATIONAL LABORATORY** [DK/DK]; Frederiks-
borgvej 399, P.O. Box 49, DK-4000 Roskilde (DK).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **GLÜCKSTAD, Jes-
per** [DK/DK]; Dalgas Have 36, 4. sal tv., DK-2000 Fred-
eriksberg (DK).

(74) Agent: **ALBIHNS A/S**; H.C. Andersens Boulevard 49,
DK-1553 Copenhagen_V (DK).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

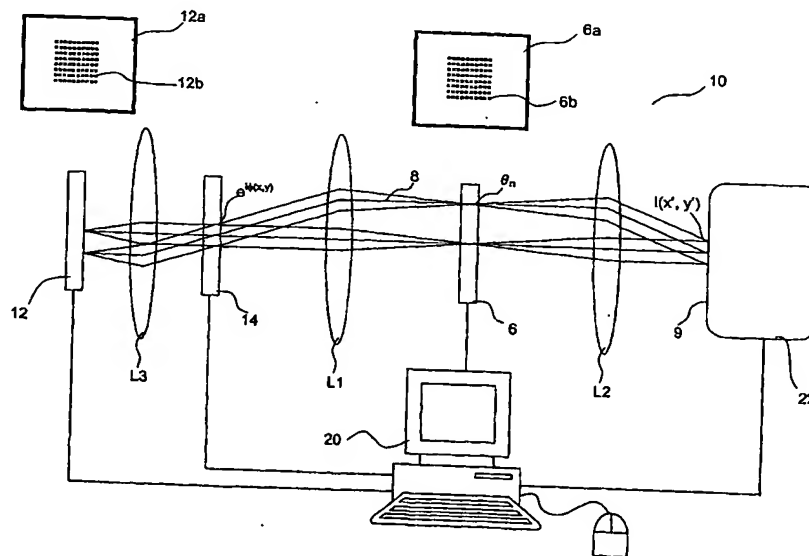
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: GENERATION OF A DESIRED WAVEFRONT WITH A PLURALITY OF PHASE CONTRAST FILTERS



(57) Abstract: The present invention relates to a method and a system for synthesizing an intensity pattern based on generalized phase contrast imaging. The phase filter contains a plurality of phase shifting regions that is matched to the layout of a light source of each phase shifting region may match the shape of the zero-order diffraction region of a respective element of the array. Further, the shape of the electromagnetic fields of the system may be distributed over a large area compared to the area of a zero-order diffraction region of a single plane electromagnetic field of a known phase contrast imaging system.

WO 2004/113993 A1